Montana Comprehensive Assessment System *(MontCAS, Phase 2 CRT)*

GRADE 7
COMMON RELEASED ITEMS
SPRING 2008
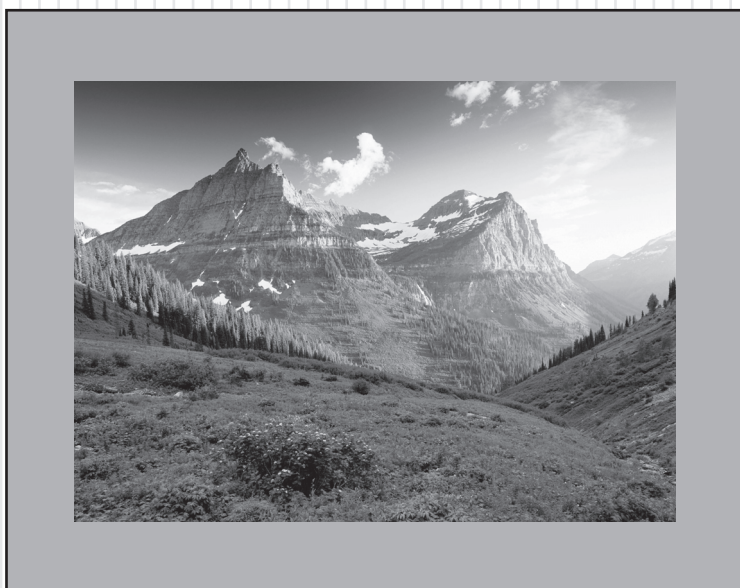
OPI

OFFICE OF PUBLIC INSTRUCTION

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General Directions

This test contains six sessions: three in reading and three in mathematics. The sessions are made up of multiple-choice questions and questions for which you must show your work or write out your answers. Write your answers to all of the questions in your Student Response Booklet. For the reading parts of the test, read each selection before answering the questions.

For each multiple-choice question, choose the best answer. Fill in the bubble in your Student Response Booklet that corresponds to your answer choice for that question.

Some questions ask you to show your work or to write out your answers. Write your answers to these questions in the spaces provided in your Student Response Booklet. Your answers must fit in the spaces provided. Any part of an answer outside the box might not be scored.

Be sure to answer all parts of each question, and to answer completely. For example, if a question asks you to explain your reasoning or show your work, be sure to do so. You can receive points for a partially correct answer, so try to answer every question.

This test session includes a reading selection and multiple-choice questions. After you read the selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this article about an inventor from the 1800s. Then answer the questions that follow.

He's the Real McCoy

Karen Kulinski

Have you ever heard the expression, "It's the real McCoy?" You might be interested to learn that the "real" McCoy was an African American inventor named Elijah McCoy.
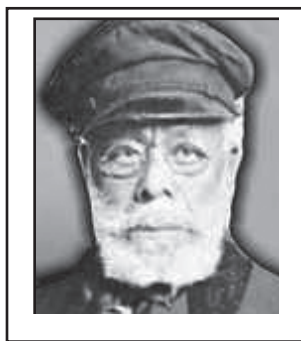
Elijah McCoy

McCoy was born in 1843 in Colchester, Ontario, Canada. His parents, George and Emilia, were former slaves who had escaped <u>via</u> the Underground Railroad. Even as a child, McCoy was fascinated by the mechanical devices used on his family's farm. To figure out how they worked, he often took them apart and reassembled them. At age 15, McCoy was sent to Scotland to study mechanical engineering. Seven years later, he returned home "a master mechanic and engineer."

Since no one would hire him as an engineer because of his race, he finally accepted a position in 1866 with the Michigan Central Railroad. The exact details of his position are uncertain. What is certain is that he recognized the problems involved in keeping a train's engine well oiled.

When a train stopped, all the engine's moving parts had to be oiled, and trains had to stop frequently for oiling or the engine would overheat and catch fire. These stops were time-consuming and dangerous, since moving trains often ran into trains that had stopped for oiling. McCoy designed a lubricating cup that automatically oiled the engine while the train was moving. In 1872, he was granted a patent for this invention, the McCoy graphite lubricator.

At first, McCoy's invention was <u>belittled</u> because an African American had created it. The Michigan Central did, however, adopt his lubricator and soon its trains were running faster and more safely. Before long, other railroads began using McCoy's invention. In fact, it worked so well that steamship lines, mills, factories, and mining companies adapted it for use in their steam equipment as well.

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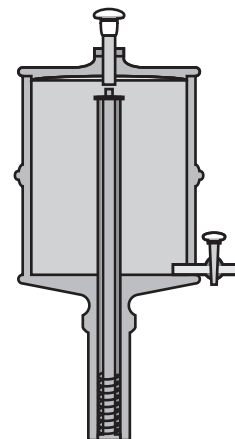
McCoy's oil cup lubricated the train's parts while the train was moving.

5   McCoy continually improved his lubricator and started a company to create other inventions. In his lifetime, McCoy was granted more than 50 patents, including one for a lawn sprinkling system and another for a folding ironing board. He received his last patent at age 80 for a vehicular wheel tire.

Other inventors tried to sell their lubricators, but none worked as well as McCoy's. Soon, companies buying steam equipment demanded that it be equipped with "the real McCoy." To this day, when the best is needed, people still ask for "the real McCoy."

Mark your answers in the section marked "Reading—Session 1" in your Student Response Booklet.

1. In the first paragraph, what does the word <u>via</u> mean?

    A. instead of
    B. by way of
    C. used with
    D. followed by

2. The **main** idea of the first paragraph is that Elijah McCoy was

    A. born in 1843 to parents who escaped slavery.
    B. raised on his family's farm in Canada.
    C. interested in mechanical things from an early age.
    D. sent to Scotland to study mechanical engineering.

3. In paragraph 4, the word <u>belittled</u> is used to suggest that people first thought McCoy's invention was

    A. expensive.
    B. unimportant.
    C. unoriginal.
    D. complicated.

4. Which statement **best** summarizes the information in paragraph 5?

    A. Elijah McCoy went on to accomplish many things in his life.
    B. Many of Elijah McCoy's inventions are not very well known.
    C. Elijah McCoy worked hard to improve his graphite lubricator.
    D. Few of Elijah McCoy's ideas were appreciated while he was alive.

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5. What was the **main** obstacle McCoy had to overcome?

    A. a lack of any formal education

    B. negative opinions about his race

    C. a lack of materials and resources

    D. dangerous conditions for railroad workers

6. According to this article, McCoy's graphite lubricator was eventually

    A. required in all steam engines.

    B. used by only one railroad company.

    C. replaced by a more modern device.

    D. used in other kinds of steam equipment.

7. In the modern world, the phrase "the real McCoy" is used to describe a product that is

    A. very popular.

    B. invented for trains.

    C. high quality.

    D. very outdated.

This test session includes a reading selection and multiple-choice questions. After you read the selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this recipe for peanut butter fudge and then answer the questions that follow.

George's Fudge
Heather M. Hopkins

Do peanut sausage, peanut soup, and peanut-prune ice cream sound tasty to you? George Washington Carver thought so. These were just a few of the 105 peanut recipes that Carver, an agricultural chemist, created in his lab. Known as "the Peanut Man," Carver also developed new ways to use soybeans, sweet potatoes, pecans, and black-eyed peas. His experiments helped farmers in the South survive by giving them additional crops to bring to market. In addition, Carver's method of crop rotation (planting different crops on the same land over time) kept the farmers' soil healthy and able to produce superior harvests year after year.

2 Carver created many of his <u>concoctions</u> (peanut shampoo and sweet potato rubber, for example) for industrial use. While most of these products won't tickle your taste buds, his peanut butter fudge is guaranteed to make you go nuts.

You need:

- waxed paper
- 8″ × 8″ baking dish
- bowl of ice water
- 3 cups powdered sugar
- 1 1/2 cups milk
- measuring cups
- large saucepan
- mixing spoon
- 1/2 cup peanut butter
- wooden spoon
- butter knife

Directions:

1. Place a 13-inch length of waxed paper inside the baking dish. Set the dish aside.
2. Fill a bowl with ice water and place it near the stovetop.
3. Pour the powdered sugar and milk into a saucepan. Stir. Make sure the mixture does not fill more than one-half of the pan, as it will expand when it boils.
4. Heat the mixture over a high heat, stirring it constantly until the mixture comes to a boil.
5. Reduce the heat to medium-high. Continue to boil the mixture, stirring it constantly to avoid burning. (If you see brown swirls in your mixture, it is about to burn—reduce the heat.) Continue to boil the mixture until it is the consistency of pudding. This will take 15–20 minutes. It is ready when a drop of the mixture forms a soft ball in a bowl of cold water.
6. Turn off the burner. Remove the pan from the heat.
7. Add the peanut butter. Stir the mixture with the wooden spoon until it stiffens like taffy. (This is hard work! Be patient and take breaks if you need to rest.)
8. Transfer the fudge into the baking dish. Press the fudge into the corners of the dish with your hands. You may need to cover your hands with water to keep them from sticking.
9. Allow the fudge to cool completely. Cut the cooled fudge into 1-inch squares.

28. What is the **main** purpose of the first paragraph?

    A. to educate the reader about George Washington Carver's accomplishments

    B. to compare and contrast peanut recipes

    C. to persuade the reader to try George Washington Carver's fudge

    D. to describe the fudge-making process

29. In paragraph 2, which word could **best** replace the word <u>concoctions</u>?

    A. harvests

    B. markets

    C. mixtures

    D. directions

30. What is the **main** purpose of the section entitled "**You need**"?

    A. to provide suggestions for how to follow the recipe

    B. to persuade the reader to try the recipe

    C. to help the reader prepare for the activity

    D. to inform the reader about different ways to begin the activity

31. What should be done immediately after the mixture comes to a boil?

    A. Turn off the burner.

    B. Continue to stir.

    C. Reduce the heat.

    D. Add the peanut butter.

32. In step 7, the author wrote "This is hard work!" **most likely** because the fudge is

    A. getting hotter.

    B. becoming thicker.

    C. breaking into pieces.

    D. sticking to things.

33. In the directions, the **main** purpose of the information in parentheses is to

   A. provide helpful hints.
   B. introduce background information.
   C. define unfamiliar words.
   D. describe the finished product.

34. Which question is **not** answered in this recipe?

   A. When should the peanut butter be added?
   B. How much time is needed to cool the fudge?
   C. What happens when the mixture is about to burn?
   D. How much powdered sugar is needed?

This test session includes a reading selection, multiple-choice questions, and a question for which you must write out your answer. After you read the selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

This story is taken from The Birchbark House, *a novel about Omakayas, an Ojibwa girl growing up in the 1840s. Read the story and then answer the questions that follow.*

Omakayas Says Good-bye to Andeg
Louise Erdrich

In the morning, Andeg greeted Omakayas with fluttering wings, ducking his head to accept a little scratch, cooing with a sweet and gurgling sound. Omakayas had never heard a crow make such a sound before, and she knew it was a special sign of affection. She was certain of it one day when Andeg hopped toward her with a twig in his beak. She carefully took it, thanked her crow, and laid the twig aside. All that day, wherever she turned, there was Andeg, hopeful, carrying a piece of bark for her. At last, Omakayas scratched Andeg's neck and sat down to feed him and talk to him. He listened, his lids closed, blue, his head tucked down in quiet bliss.
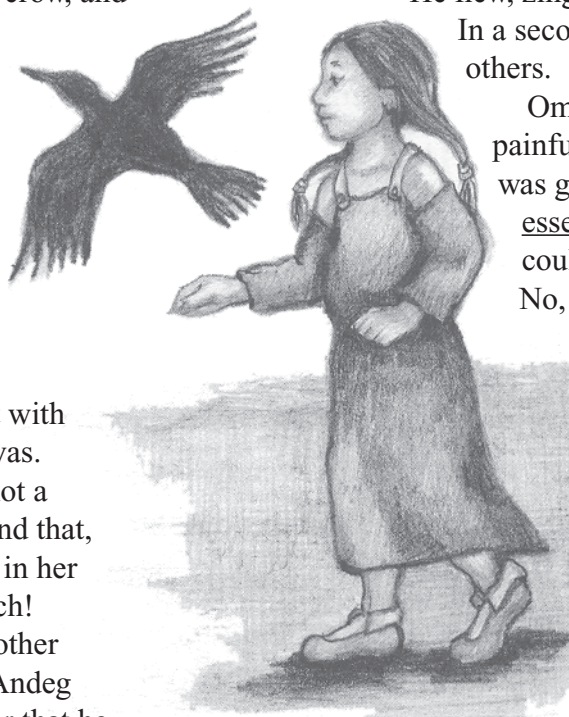
"You want to make a nest with me, don't you?" said Omakayas. "I can't. I love you, but I'm not a **2** bird." She was surprised to find that, as she said this, tears formed in her eyes. Andeg loved her so much!

"You will have to find another crow," she said, very gently. Andeg didn't seem to hear. Still, after that he would leave for hours at a time. Now **3** Omakayas was afraid that he would be taken for a wild bird and shot or killed. She attached a bit of red wool to his leg. Andeg managed to pull it off with his clever beak. He could untie almost anything if he worked hard enough.

One day, while Omakayas was working just outside the cabin in the cool air, watching a fire Nokomis had made to smoke some of the fish Deydey caught just at ice breakup, there was a **4** sudden harsh cawing of crows. A group of wheeling, excited black birds passed overhead. Just like that, without a good-bye, Andeg jumped off her shoulder. He flew, zinging upward into the midst of the flock. In a second, he was <u>indistinguishable</u> from the others.

Omakayas felt her heart squeeze shut painfully as the birds passed out of sight. He was gone. Maybe she should have cut away <u>essential</u> feathers from his wings, but she couldn't stand to think of him a captive. No, she decided, though her heart hurt, it **5** was better that he join with his own kind. He wasn't human, no matter how often he said "Gaygo, Pinch," or greeted her at the door, croaking out, "Ahneen, Ahneen!" Andeg stole and hoarded bits of bright cloth and shiny metal shards, he wasn't a human, he was still a crow, and she couldn't change that.

She couldn't change that any more than she could change being who she was, Omakayas, who heard the voices of plants and went dizzy. Omakayas, who talked to bear boys and received their medicine. Omakayas, who missed her one brother and resented the other, who envied her

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sister. Omakayas, the Little Frog, whose first step was a hop. Omakayas who'd lost her friend.

She thought she had cried all the tears she had to cry, but still found there were some left for Andeg. Omakayas put her hands to her face and sobbed until she felt just enough better. After all, she thought, Andeg was wild and she had always known it, always expected this moment to come. The thought comforted her. There in the yard, looking into the heart of the fire, Omakayas suddenly experienced a strange awareness. Like Andeg, she couldn't help being just who she was. Omakayas, in this skin, in this place, in this time. Nobody else. No matter what, she wouldn't ever be another person or really know the thoughts of anyone but her own self. She closed her eyes. For a moment, she felt as though she were falling from a great height, plunging through air and blackness, tumbling down with nothing to catch at. With a start of fear, she opened her eyes and felt herself gently touch down right where she was, in her own body, here.

Mark your answers in the section marked "Reading—Session 3" in your Student Response Booklet.

69. In the first paragraph, what does Andeg **most likely** want from Omakayas?

   A. freedom
   B. guidance
   C. protection
   D. attention

70. What is the **main** purpose of the first paragraph?

   A. to describe a special relationship
   B. to explain how Andeg greets people
   C. to describe the lesson Omakayas learns
   D. to foreshadow a conflict between two characters

71. Omakayas believes Andeg brings her pieces of bark so she will

   A. build a nest.
   B. talk to him.
   C. play a game.
   D. share his meal.

72. In paragraph 2, what does Omakayas come to understand?

   A. that she must protect Andeg from other wild birds
   B. that she cannot give Andeg what he needs
   C. that she has hurt Andeg by ignoring him
   D. that she hopes Andeg will choose to stay with her

73. In paragraph 3, Omakayas ties a piece of red wool to Andeg's leg so he will

   A. return to her.
   B. not find another crow.
   C. pull it off with his beak.
   D. not look like a wild bird.

74. In paragraph 4, the word <u>indistinguishable</u> shows that Andeg is

   A. flying apart from the flock.
   B. flying higher than usual.
   C. blending in with the other crows.
   D. easy to see from a distance.

75. In paragraph 5, the phrase "Omakayas felt her heart squeeze shut painfully" **most likely** means she is

   A. worried about Andeg.

   B. sad about the loss of Andeg.

   C. angry that Andeg left.

   D. grateful that Andeg is free.

76. In paragraph 5, the word <u>essential</u> means

   A. unusual.

   B. attractive.

   C. powerful.

   D. necessary.

77. What does Omakayas realize in paragraph 5?

   A. Andeg will return to her someday.

   B. Andeg needs to live like other birds.

   C. She will have many other birds like Andeg.

   D. She has been trying too hard to keep Andeg.

78. In the last paragraph, what **most likely** causes Omakayas to feel a "start of fear"?

   A. She has a sense of how alone she is.

   B. She cannot remember where she is.

   C. She wonders why she has lost a good friend.

   D. She cannot understand how she has fallen.

79. What is the turning point in this story?

   A. when Andeg brings twigs and bark

   B. when Andeg removes the red wool

   C. when Andeg joins the other crows

   D. when Andeg learns to speak

80. Which statement **best** expresses the main idea of this story?

   A. Wild birds are difficult to tame.

   B. True friends are hard to find.

   C. We should always try to succeed.

   D. We must accept who we truly are.

Write your answer in the space provided for it in your Student Response Booklet.

81. What does Omakayas learn from her friendship with Andeg? Use information from the story to support your answer.

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 1 (No Calculator)" in your Student Response Booklet.

9. Jacob wants to buy a game that costs $37.25. He has saved $12.25 each month for two months. How much **more** money does Jacob need to buy the game?

   A. $12.75
   B. $13.35
   C. $24.50
   D. $49.75

11. Tuesday's stock market closing price was a change of -2.76 points from Monday's closing price. On Tuesday, the stock market closed at 1531.47 points. What was Monday's closing price?

   A. 1534.23 points
   B. 1533.13 points
   C. 1531.31 points
   D. 1528.71 points

13. Study the diagram below.
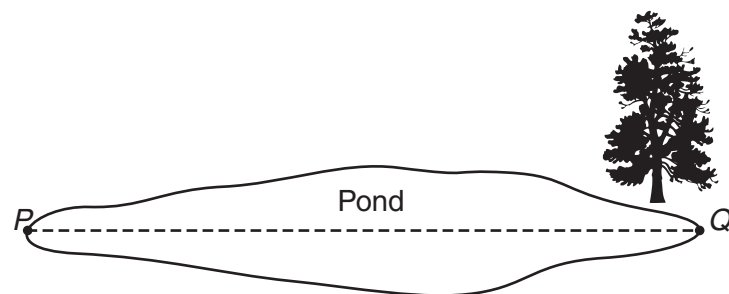
   The tree is about 20 feet tall. About how far is it from point P to point Q?

   A.   3.5 feet
   B.   7 feet
   C.   70 feet
   D. 100 feet

14. Which fraction is equivalent to $\frac{2}{3}$?

   A. $\frac{28}{36}$

   B. $\frac{24}{32}$

   C. $\frac{32}{48}$

   D. $\frac{27}{45}$

16. To be complete, the equation below needs an operation symbol inside the parenthesis.

$$24 - (6 \square 2) \div 3 = 23$$

Which operation symbol should replace the box to make the equation true?

A. +

B. −

C. ×

D. ÷

17. Jenna bought two CDs priced at $12.95 each. She used a coupon for 10% off the total purchase. Which is the **best** estimate for the price Jenna paid for the purchase?

A. $29.00

B. $26.00

C. $23.00

D. $20.00

Write your answers in the spaces provided in your Student Response Booklet. Show all of your work.

19. Compute:

  15% of 80

20. Compute:

  $12 + 9 \div 3 \times 4 - 1$

This test session includes multiple-choice questions. You may use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 2 (Calculator)" in your Student Response Booklet.

27. A printing company charges $6 for each box of checks plus a one-time fee of $4 for shipping. Which table shows the total cost, including shipping, for up to four boxes of checks?

A.

Boxes	Total Cost ($)
1	6
2	10
3	14
4	18

B.

Boxes	Total Cost ($)
1	10
2	14
3	18
4	22

C.

Boxes	Total Cost ($)
1	10
2	16
3	22
4	28

D.

Boxes	Total Cost ($)
1	10
2	20
3	30
4	40

29. Square P is shown below.

Square P

The area of Square P is 16 times as great as the area of Square Q. How many times as great as the length of Square Q is the length of Square P?

A. 2 times

B. 4 times

C. 8 times

D. 16 times

14

30. Pentagon *ABCDE* is similar to pentagon *NPQLM*, as shown below.
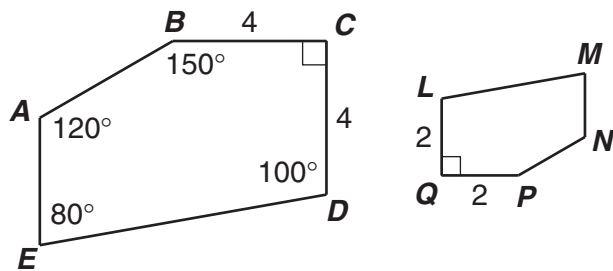
What is the measure of angle *N*?

A. 60°

B. 75°

C. 100°

D. 120°

37. Julio made the rectangular banner shown below.
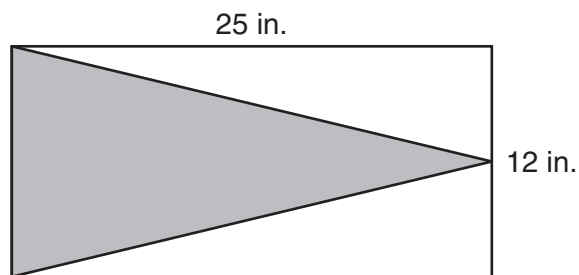
What is the area of the shaded triangle in the banner?

A. 300 sq. in.

B. 150 sq. in.

C. 75 sq. in.

D. 74 sq. in.

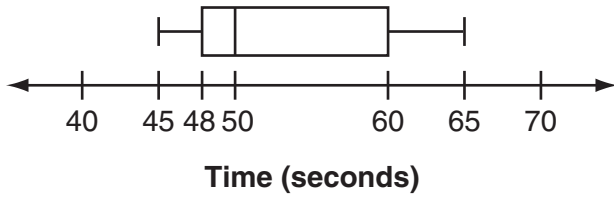38. A locked door is unlocked by turning the knobs shown below to a particular combination of numbers.
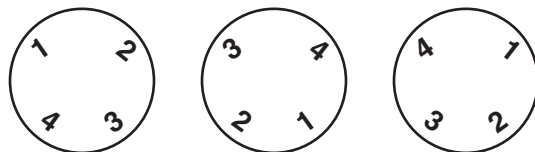
How many possible number combinations are there to unlock the door?

A. 4

B. 12

C. 24

D. 64

40. Armand recorded the times it took him to complete a race course during several practice sessions. The box-and-whisker plot below represents his data.

Time (seconds)

Which statement **correctly** describes Armand's times?

A. At least half of them were 50 seconds or less.

B. They improved the more he practiced.

C. Most of them were between 50 and 60 seconds.

D. Very few of them fell between 48 and 50 seconds.

41. In 30 minutes, a shark can swim about 4000 feet. About how fast, in miles per hour, does the shark swim?

A. $\frac{3}{4}$ mph

B. $1\frac{1}{2}$ mph

C. 4 mph

D. 8 mph

42. What is the greatest number of lines of symmetry a scalene triangle can have?

A. 0

B. 1

C. 2

D. 3

Use the coordinate grid below to answer question 43.
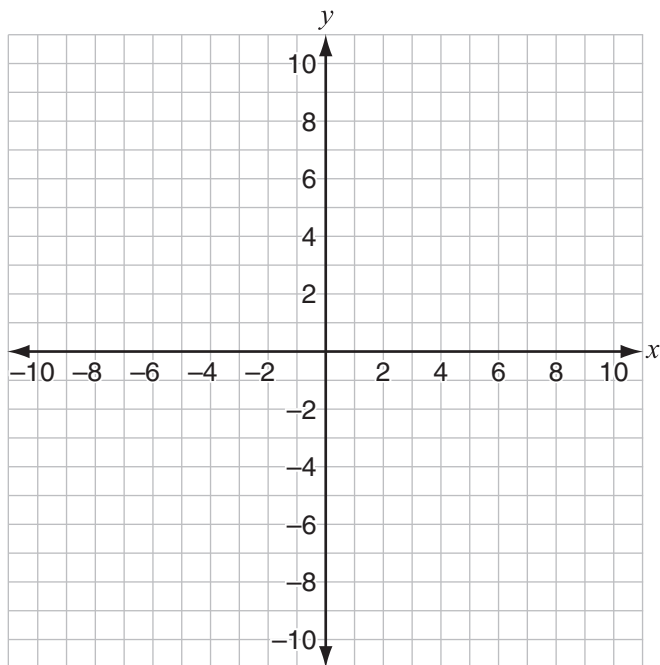
43. Line segment *LM* is plotted on a grid. The length of the segment is 5 units. Point *L* is located at $(4, -2)$. Which could be the coordinates of point *M*?

    A. (9, 3)
    B. (4, 5)
    C. $(-1, -2)$
    D. $(-4, -7)$

44. A music group's album sales totaled 12.6 million dollars last year. Which number is equal to 12.6 million dollars?

    A. $126,000,000
    B. $ 12,600,000
    C. $ 12,000,006
    D. $ 1,200,006

46. On the coordinate grid below, triangle *PLW* is the image of triangle *TGR*.
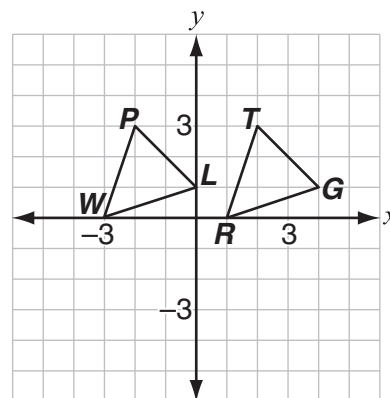
Which phrase describes the transformation from triangle *TGR* to triangle *PLW*?

    A. a translation (slide) four units to the left
    B. a 180° rotation (turn) around point *R*
    C. a reflection (flip) over the *x*-axis
    D. a reflection (flip) over the *y*-axis

17

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions in the section marked "Mathematics—Session 3 (Calculator)" in your Student Response Booklet.

50. The table below shows a company's monthly insurance fees.

Month	Insurance Fees
1	$110
2	$170
3	$230
4	$290

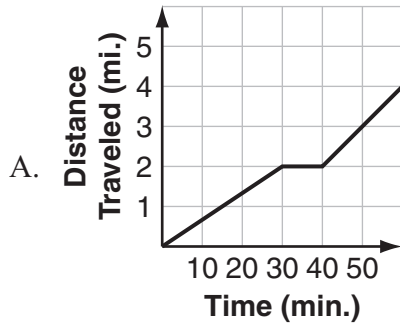Which expression can be used to find the insurance fees for m months?

A. $m + 60$

B. $50m + 60$

C. $50m + 70$

D. $60m + 50$

52. Max has a solid three-dimensional shape. The shape has exactly four vertices. Which term describes Max's shape?

A. triangular pyramid

B. triangular prism

C. square pyramid

D. cube

56. Anita left home and rode her bike 2 miles in 30 minutes. Then she stopped for lunch for 10 minutes. After lunch, Anita rode 2 miles in 20 minutes to get back home. Which graph **best** represents the total distance Anita traveled over time?

A.

Distance Traveled (mi.)
5
4
3
2
1
10 20 30 40 50
Time (min.)

B.

Distance Traveled (mi.)
5
4
3
2
1
10 20 30 40 50
Time (min.)

C.

Distance Traveled (mi.)
5
4
3
2
1
10 20 30 40 50
Time (min.)

D.

Distance Traveled (mi.)
5
4
3
2
1
10 20 30 40 50
Time (min.)
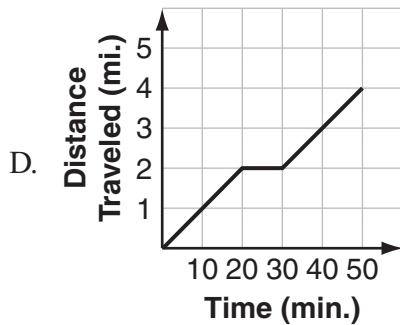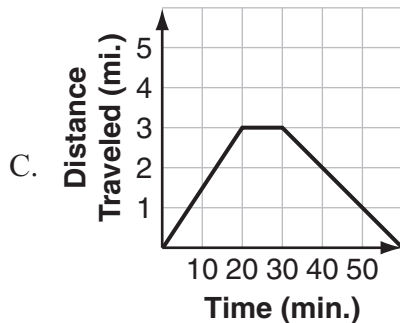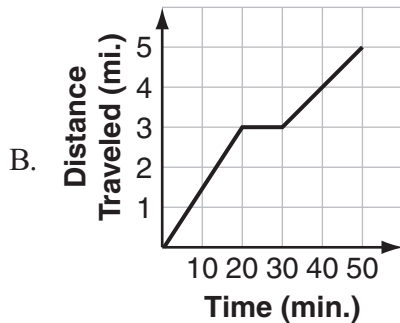
57. Charlotte has the following coins in a bag:

- 36 pennies
- 16 nickels
- 8 dimes
- 12 quarters

She takes out a coin at random. What is the probability that the coin is a nickel?

A. $\dfrac{1}{6}$

B. $\dfrac{2}{9}$

C. $\dfrac{1}{4}$

D. $\dfrac{2}{7}$

59. Some car prices at a used car dealership are listed below.

Used Car Prices

$9,000 $5,750 $32,000 $3,250 $10,000 $6,500

About how much does the **mean** price decrease when the outlier price is removed?

A. $2,000

B. $3,000

C. $4,000

D. $5,000

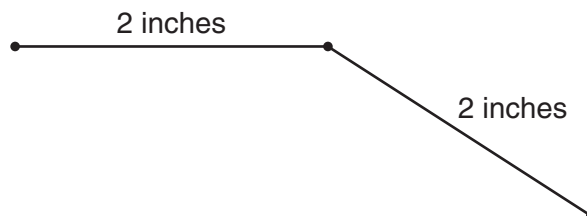60. The chart below shows the number of students from each grade level in a school chorus.

Students in the School Chorus

Grade	Girls	Boys
7th	16	32
8th	24	40

What is the ratio of 8th graders to 7th graders in this school chorus?

A. $\dfrac{5}{4}$

B. $\dfrac{4}{3}$

C. $\dfrac{3}{2}$

D. $\dfrac{9}{5}$

61. Linda drew three vertices and two sides of a quadrilateral, as shown below.

2 inches

2 inches

She then drew the last vertex and the last two sides of the quadrilateral. Which figure **cannot** be the quadrilateral Linda drew?

A. a rectangle

B. a trapezoid

C. a kite

D. a rhombus

66. Miguel is conducting a survey to determine how many students in his school like listening to classical music. Which sample is **most appropriate** for Miguel to survey?

   A. every 20th person on two pages of a phone book

   B. every 20th person at a classical music concert

   C. every 20th student in the school's orchestra

   D. every 20th student in the school's cafeteria

69. Johanna paid $10 for supplies to make bracelets. She sells each bracelet for $2. Which equation can be used to find the profit, p, Johanna makes selling b bracelets? [hint: profit = income − cost of supplies]

   A. $p = 2b + 10$

   B. $p = 2b - 10$

   C. $p = 10b + 2$

   D. $p = 10b - 2$

70. Ginny did a survey to see how much time it took contestants to finish a puzzle in a competition and the number of practice puzzles each contestant solved the week before to prepare for the competition. The results are shown on the scatter plot below. The best fit line is drawn.
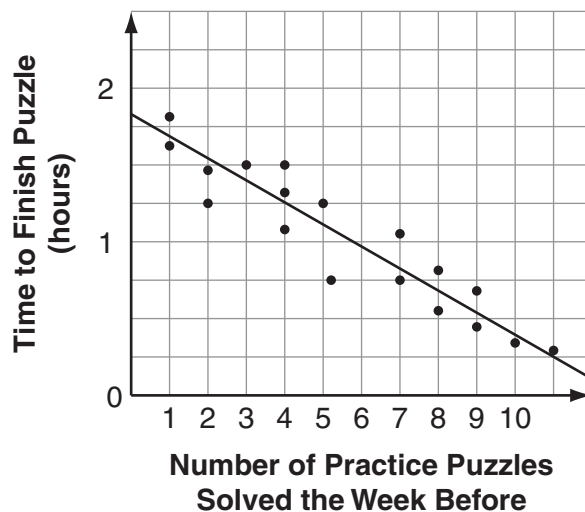
Based on the plot, approximately how many practice puzzles did contestants solve the week before if they finished the competition puzzle in one hour?

   A. 2

   B. 4

   C. 6

   D. 10

Write your answer in the space provided for it in your Student Response Booklet. Show all of your work.

73. Luis fills a box with books that each have the same weight. The total weight, w, in pounds, of the box filled with b books is shown by the equation below.

$$w = 6b + 2$$

a. What is the total weight, in pounds, of a box filled with 4 of the same books? Show or explain how you found your answer.

b. On the grid in your Student Response Booklet, graph the equation for boxes filled with 2, 4, 6, 8, and 10 of these books. Be sure to label each axis.

c. The maximum weight of a box that Luis can carry is 50 pounds. What is the greatest number of these books that Luis can put into a box and still be able to carry it? Show or explain how you found your answer.

Acknowledgments